

ON THE GENUS CIRRODRILUS PIERANTONI, 1905, WITH
A DESCRIPTION OF A NEW BRANCHIOBDELLID
FROM JAPAN¹

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THREE FIGURES

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In 1905 Pierantoni reported of a remarkable Branchiobdellid, *Cirrodrilus cirratus* basing his description on several ill-preserved individuals which were obtained from specimens of the Japanese crayfish (*Astacus japonicus* = *Cambaroides japonicus*) possessed by the Natural History Museum of Paris. Subsequently Kawamura (1918) gave a figure of a Branchiobdellid also collected from the crayfish of Shikotsu Lake in Hokkaido under the name of *Pterodrilus* sp. Lately I collected from the crayfish of Sapporo and Soranuma, both in Hokkaido, a large number of Branchiobdellid worms closely related to the two specimens above mentioned. On closer examination of the specimens, it was revealed that *Cirrodrilus cirratus* and *Pterodrilus* sp. were probably identical with them and referable to the genus *Ceratodrilus* proposed by Hall in 1914. Moreover among my collection I found some specimens of different characters which appear to represent a new species of *Ceratodrilus*.

Before proceeding further I should like to express my hearty thanks for the advice and the help in collecting literature offered by Prof. Dr. T. Uchida, at whose suggestion I began to study the animal group. My warm thanks are also due to Mr. S. Makino who collected numerous specimens and kindly placed them at my disposal.

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Ceratodrilus cirratus (Pierantoni)

(Text-figs. 1, 2)

Cirrodrilus cirratus Pierantoni, 1905, pp. 1-3, Pl. 6.*Pterodrilus* sp. Kawamura, 1918, p. 208, fig. 325.

Body cylindrical, about 2-3 mm. long and about 0.35-0.5 mm. wide in the widest portion about the trunk segment VII. From the widest portion the trunk becomes gradually more or less narrow towards both

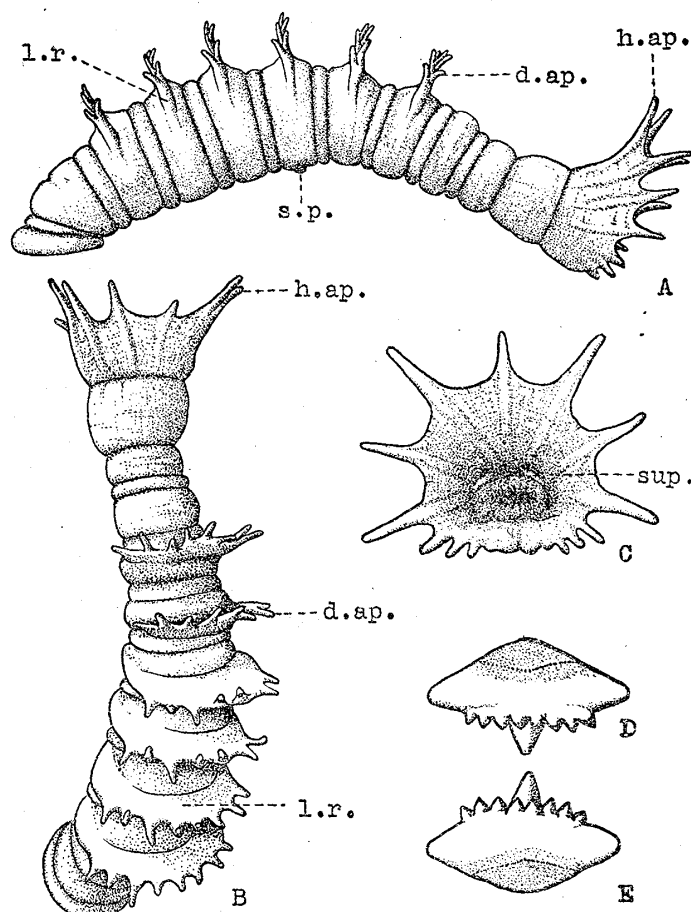


Fig. 1—*Ceratodrilus cirratus* (Pierantoni) A, lateral view, $\times 40$; B, dorsal view, $\times 40$; C, oral view of the head, $\times 40$. D and E, anterior view of dental plates, $\times 500$; D, dorsal plate; E, ventral plate.

d. ap., dorsal trunk appendages; h. ap., head appendages; l. r., lamellar ridge; s. p., papilla with spermathecal pore; sup., supraoral papillæ.

the anterior and posterior ends. Body segments evident; major annulations, especially in contracted specimens, distinctly above minor annulations. Head distinct; circumbuccal ring bilobed, though not sharply, fringed with 8 papillæ on each lobe. Dorsolateral margin of the head furnished with membranous portion deeply incised forming 13 tentaculiform appendages, of which the 7 dorsal being considerably longer than the 3 ventral pairs. The longer appendages consist of 3 paired and single median, as shown in Fig. 1, C.; among them, alternative 4 are more or less larger than the rest. One paired papillæ are present between mouth and the membranous portion and are named in the present paper as "supra-oral papillæ." Dorsal and ventral dental plates both brown in colour and of similar form; teeth of these plates colour-less and consist of a large median and a series of 8 small teeth of more or less uniform size (Fig. 1, D, B). The trunk segments (III-VIII) furnished with a lamellar ridge, which extends transversely across the dorsal surface and gives rise to 8 digitiform

	Pierantoni's specimen	my specimen
Body length	3-3.5 mm.	2-3 mm.
Head	very large, pyriform.	not so large, not pyriform.
Circumbuccal ring	with 16 papillæ (?).	with 16 papillæ.
Dorsal and ventral dental plates	similar.	almost similar.
Teeth	a median large and 8 small teeth.	a median large and 8 small teeth.
Head appendages of dorso-lateral margin	12.	13.
Supra-oral papillæ	?	2.
Trunk appendages	ventral in II-VII (6 segments), 7 in each segment.	dorsal in III-VIII (6 segments), 8 in each segment.
Spermathecal pore	?	on a conspicuous papilla.
Penis	?	eversible.
Testes and funnels	?	paired in the segments, V and VI.

appendages on its free margin. Spermathecal pore opens on a conspicuous papilla. Penis eversible. Testes and funnels spaired, in the trunk segments V and VI. Spermatheca cylindrical, not bifid.

Localities. Sapporo and Soranuma, both in Hokkaido.

Remarks. The specimen, on which Pierantoni based his description, was, as he indicated, in a poor state of preservation, and could not be used for the investigation of its internal anatomy.

As is given in the preceding table, the main difference between Pierantoni's and my specimens lies in the position of the trunk appendages, while the other characters accord generally with each other.

Before entering upon the discussion of the question the following fact is noticeable. In my specimens, those fixed with Zenker's solution or sublimate-alcohol almost retain the structure of living condition, while

those fixed with dilute alcohol are considerably deformed and bear remarkable resemblances to Pierantoni's specimen in pyriform head which lacks the membranous margin and obscureness of the lamellar ridge and the annulation of the trunk (Fig. 2).

In regard to the difference in number of the head appendages between Pierantoni's specimen and my own, I am of opinion that his specimen is abnormal or damaged.

The position of the trunk appendages in his specimen, the most distinguishable character of all, seems to me doubtful. In his paper no description about the anus, spermathecal pore and male pore is given. Therefore, it must be depended only on the head in distinguishing the dorsal

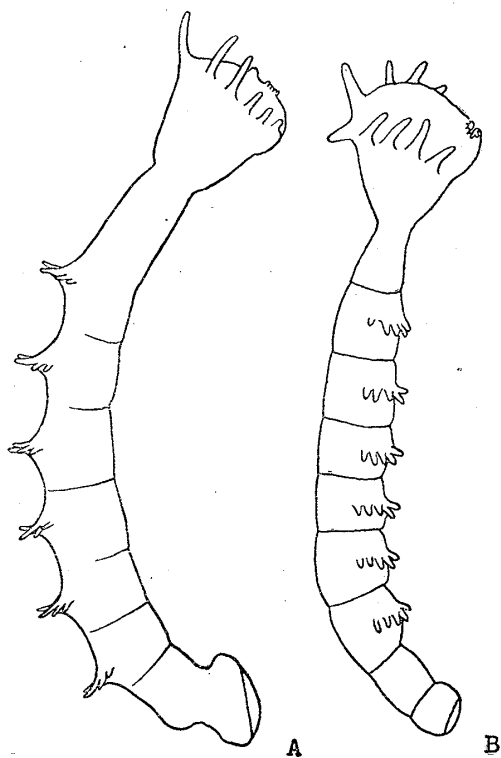


Fig. 2—A, ill-preserved specimen in my material; B, Pierantoni's original figure of *Cirrodriilus cirratus*.

and ventral surfaces of the worm.

Furthermore, in the figure, the neck is very narrow and the annulation of the anterior part of trunk obscure. Thus it seems to me possible that in his specimens the head was twisted on account of ill-preservation.

Pierantoni describes that the trunk appendages are present on segments II to VII. But it appears to me that in his figure they are situated on segments III to VIII.

As to the number of the appendages in each segment, here are some differences between his specimens and my own. But such variations are not uncommon among the specimens. The supra-oral papillæ, of which description is not given by him, were probably overlooked in his investigation. Such being the case, it seems to be better to refer my specimens to the species recorded by Pierantoni.

From Kawamura's figure, it is evident that the worm described as *Pterodrilus* sp. does not belong to the genus *Pterodrilus* but to *Ceratodrilus*. Moreover, the locality in which the animal was found is not far from Sapporo and Soranuma. Therefore, the specimen seems to me to be referable to the present species.

There are in the Branchiobdellidæ only two genera, *Pterodrilus* and *Ceratodrilus* which are provided with the dorsal trunk appendages. Now, out of them, *Ceratodrilus* alone is furnished with tentaculiform head-appendages. In respect to these characters the species agrees with *Ceratodrilus thysanosomus*, but there are some differences between them, such as number of teeth, tentaculiform appendages and segments which bear the trunk appendages. It seems to me that these differences are not of generic value and, moreover, the two species are generally in agreement with respect to several other points. Therefore, I propose to place our species in the genus *Ceratodrilus*.

Ceratodrilus Uchidai, nov. sp.

(Text-fig. 3).

Body about 2-2.6 mm. long and about 0.4-0.5 mm. wide in the widest portion. The species is very similar to the former species, but

differs in several points as is described below. Supra-oral papillæ absent. The dorsal trunk appendages, which are more or less shorter than those of *C. cirratus*, are 12 in number in each segment which entirely lacks the lamellar ridge. Spermatheca more or less wider than that of *C. cirratus* in the middle portion.

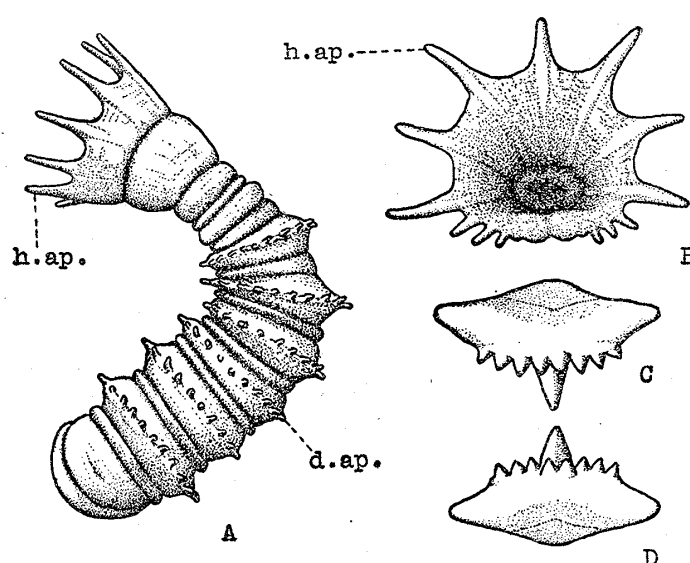


Fig. 3—*Ceratodrilus Uchidai* nov. sp. A, dorsal view, $\times 40$; B, oral view of head, $\times 40$; C and D, anterior view of dental plates, $\times 500$; C, dorsal plate; D, ventral plate.

d. ap., dorsal trunk appendages; h. ap., head appendages.

Localities. On the crayfish from Sapporo and Soranuma, Hokkaido.

Remarks. The present species is rather rare and is easily distinguishable from the former in number and length of the trunk appendages. I take pleasure of naming the species in honour of Prof. T. Uchida.

The emendation of the generic diagnosis given by Hall (1914) on the basis of his single species, *Ceratodrilus thysanosomus* seems to be necessary on account of the increase of the two more species in the genus.

Ceratodrilus Hall, 1914.

Circumbuccal ring bilobed; each lobe fringed with numerous small

papillæ. Dorso-lateral (dorsal in *C. thysanosomus*) margin of the head membranous, and deeply incised to form several tentaculiform appendages. Some of trunk segments furnished with several dorsal digitiform appendages, which are transversely arranged in a row directly on the dorsal surface or on the free margin of the lamellar ridge of the segment. Spermatheca cylindrical to flask shaped, not bifid. Testes paired and located in trunk segments V and VI.

The species belonging to the genus are characterized as follows.

Ceratodrilus thysanosomus Hall, 1914

Head appendages 4 in number; supra-oral papilla (?). Trunk appendages in the anterior 7 segments (I-VII), 6, 7 or 8 in each segment. Habitat: America.

Ceratodrilus cirratus (Pierantoni, 1905)

Head appendages 13 in number; supra-oral papillae one pair. Trunk appendages in 6 segments (III-VIII), 8 in each segment. Habitat: Japan.

Ceratodrilus Uchidai nov. sp.

Head appendages 13 in number; no supra-oral papilla. Trunk appendages in 6 segments (III-VIII), 12 in each segment. Habitat: Japan.

LITERATURE

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